ENTOMOLOGICAL NEWS

MARCH 1946

Vol. LVII **No. 3**

CONTENTS

Alexander—Undescribed crane-flies, Part V 65

Carpenter—Tick collections 71

Beatty—Dragonflies in Pennsylvania and New Jersey (cont.) 76

Rapp—Translation of introduction to Meigen, 1800 81

Personal 86

Entomological Literature 86

Review—Insect dietary 91

PUBLISHED MONTHLY, EXCEPT AUGUST AND SEPTEMBER, BY

THE AMERICAN ENTOMOLOGICAL SOCIETY

PRINCE AND LEMON STS., LANCASTER, PA.

AND

THE ACADEMY OF NATURAL SCIENCES, PHILADELPHIA 3, PA.

Subscription, per yearly volume of ten numbers: $3.00 domestic; $3.30 foreign; $3.15 Canada. Entered as second-class matter April 19, 1943, at the post office at Lancaster, Pa., under the Act of March 3, 1879. Acceptance for mailing at the special rate of postage prescribed for in Section 1, Act of October 3, 1917, authorized January 15, 1921.

ENTOMOLOGICAL NEWS

ENTOMOLOGICAL NEWS is published monthly, excepting August and September, by The American Entomological Society at 1900 Race Street, Philadelphia 3, Pa., U. S. A.

PHILIP P. CALVERT, Editor Emeritus. Editorial Staff: E. T. CRESSON, JR., E. J. F. MARX, J. A. G. REHN, A. G. RICHARDS, JR., and R. G. SCHMIEDER.

Subscription price, per yearly volume of 10 numbers: Domestic, $3.00; Foreign, $3.30; Canada, $3.15—U. S. Currency.

SUBSCRIPTIONS, ADVERTISEMENTS: All communications and remittances to be addressed to **ENTOMOLOGICAL NEWS, 1900 Race Street, Philadelphia 3, Pa.**

ADVERTISING RATES: Full width of page. Payments in advance.

	1 Inch	2 Inches	3 Inches	6 Inches
One Issue	$1.00	$ 1.90	$ 2.75	$ 4.80
Five Issues	4.50	8.50	12.00	21.00
Ten Issues	8.00	15.00	21.00	36.00

MANUSCRIPTS and all communications concerning same should be addressed to **R. G. Schmieder, Zoological Laboratory, University of Pennsylvania, Philadelphia 4, Pa.**

The receipt of all papers will be acknowledged and, if accepted, they will be published as soon as possible. If not accepted, authors will be so advised and postage requested for return of manuscripts. Articles longer than six printed pages may be published in two or more installments, unless the author is willing to pay for the cost of a sufficient number of additional pages in any one issue to enable such an article to appear without division.

Proof will not be sent to authors, so manuscripts must be in final form for printing.

ILLUSTRATIONS will be published at the author's expense as follows: Cost of engraving plus cost of printing text-figures exceeding 2 inches in height; or plus cost of printing insert plates. The size of text-figures or plates when printed must not exceed 4 x 6 inches.

All blocks will be sent to authors after publication. It is not advisable to print half-tones as text-figures.

TABLES: Authors will be charged the setting of all tables exceeding 2 inches in height.

SEPARATA: Twenty-five extras of an author's contribution will be given free. They will be "run of form," without removal of extraneous matter, folded but not bound, uncut and without cover.

Authors wishing more than the 25 separates must so advise the Editor or the printer. See bottom of this page. The Editor requests that authors state the number of separates desired in a letter accompanying their manuscript.

SEPARATES of articles without covers, without extraneous matter, will be furnished by the printer at the following prices: 1–4 pages, 25 copies, $2.50; 50 copies, $2.50; 100 copies, $3.00. 5–8 pages, 25 copies, $4.00; 50 copies, $4.00; 100 copies, $4.75. 9–12 pages, 25 copies, $6.25; 50 copies, $6.25; 100 copies, $7.25. Covers: first 50, $2.75; additionals at 2 cents each. Plates, printed on one side: first 50, $2.00; additionals at 1½ cents each. Transportation charges will be extra. THE LANCASTER PRESS, INC., Lancaster, Pa.

ENTOMOLOGICAL NEWS

VOL. LVII MARCH, 1946 No. 3

Undescribed Species of Crane-Flies from the Western United States and Canada (Dipt.: Tipulidae). Part V

By CHARLES P. ALEXANDER, Massachusetts State College, Amherst, Massachusetts

In the present article I wish to describe three new species of the vast genus *Tipula* from the Rocky Mountain and Pacific states and provinces. Except where indicated to the contrary in the text, the types of the novelties are preserved in my personal collection of world Tipulidae. I am very much indebted to Messrs. Hallahan, Leech, Melander and Michener for their kindly interest in saving these flies.

Tipula (Yamatotipula) jacintoensis n. sp.

♂. Length about 10 mm.; wing 9–9.5 mm.; antenna about 2 mm.

♀. Length about 12–14 mm.; wing 10–11 mm.

Closest of *lanei* in the small size and darkened wings, differing especially in the highly contrasted yellow and black pattern of the thorax and abdomen.

Thorax black, variegated with light yellow, including the pronotal scutellum, pretergites, dorsopleural membrane, median region of scutum, parascutella and the broad posterior portions of the scutal lobes; cephalic two-thirds of mediotergite and the entire anapleurotergite similarly brightened. Pleura dark brown, the pteropleurite and metapleurite light yellow. Legs yellow, the femoral tips narrowly blackened, on the posterior legs including the outer sixth or seventh. Abdomen black, the broad posterior and lateral borders of the tergites, and less evidently of the sternites, bright yellow. Male hypopygium with the median tergal lobe low and broad, without lateral shoulders as in *spernax*.

Holotype: ♂, San Jacinto Mountains, CALIFORNIA, Tahquitz Valley, altitude 8,000 feet, June 3, 1940 (*C. D. Michener*). *Allotopotype:* ♀; pinned with type. *Paratopotype:* ♂; *paratypes:* 1 ♂, 1 ♀, Round Valley, altitude 8,800 feet, June 14, 1940 (*C. D. Michener*).

Further collections and study may show that this fly is a race of the northern *Tipula* (*Yamatotipula*) *lanei* Alexander (Mount Hood, Oregon).

Tipula (Oreomyza) shoshone n. sp.

Allied to *pseudotruncorum;* antennae black, the apex of pedicel restrictedly yellow; mesonotal praescutum gray, with five dark brown stripes, the median one capillary; male hypopygium with the ninth tergite having a narrow rectangular median notch, the broad lateral lobes produced into a small tooth; margin of lobes with microscopic denticles; outer dististyle gradually narrowed outwardly; inner dististyle long and narrow, with both the beak and lower beak united into a single blackened structure; outer basal lobe entirely pale.

♂. Length about 13.5–14 mm.; wing 14.5–15.5 mm.; antenna about 2.9–3 mm.

Frontal prolongation of head uniformly gray; nasus small; palpi brownish black. Antennae black; scape elongate, gray pruinose; apex of pedicel restrictedly obscure yellow; flagellar segments short-cylindrical, with poorly indicated basal enlargements; verticils long and conspicuous, much exceeding the segments in length. Head gray; vertex with a brown median stripe.

Pronotum gray, with three small brown spots. Mesonotal praescutum gray, conspicuously patterned with dark brown, including five stripes, the sublateral pair broadest; intermediate stripes at anterior end with a narrower backward extension that passes through the pseudosutural foveae and almost reaches the suture behind; fifth stripe a capillary median line; posterior sclerites of notum gray, each scutal lobe with two disconnected dark brown areas; a slightly paler brown median stripe, beginning at the suture, extending almost to the abdomen, narrowly interrupted at the posterior end; parascutella dark. Pleura and

pleurotergite light gray, restrictedly patterned with somewhat darker gray; dorsopleural region buffy yellow; propleura yellow, variegated with small brown spots. Halteres yellow, knob brownish black. Legs with the coxae and trochanters gray; remainder of legs black, the femoral bases broadly yellow, more extensive on the fore legs where nearly the proximal third is included, on posterior femora with nearly the basal fifth brightened; claws (male) delicately setuliferous, with a small subbasal tooth. Wings cream-yellow, variegated with pale brown and darker brown areas, the latter most evident at the stigma and as an arcular darkening; the paler brown clouds cover much of the remainder of wing, interspersed with pale ground areas; post-stigmal pale band broadest, especially developed in the holotype, more restricted in the paratype. Venation: R_{1+2} preserved.

Abdominal tergites dark brown, the more basal segments light gray pruinose on sides; at about tergite five and on the succeeding segments, the caudal borders of the tergites narrowly yellow; lateral tergal borders broadly yellow; sternites gray, narrowly darkened medially and sublaterally; subterminal sternites with broad areas on either side of midline; hypopygium relatively large, dark brownish gray, more or less variegated with yellow. Male hypopygium with the ninth tergite broad, transverse, narrowed posteriorly, the caudal border with a narrow rectangular median notch; behind the notch with a dorsal furrow that is provided with numerous microscopic setulae from small tubercles; lateral tergal lobes broad, the outer lateral angle produced into a small tooth; margins of lobes with additional microscopic denticles. Appendage of ninth sternite dilated at base, the outer pendulous portion bearing several long yellow setae, those at apex subequal in length to the outer lobe of the appendage. Basistyle entire, unproduced. Outer dististyle relatively long and narrow, broadest subbasally, very gradually narrowed to the obtuse tips. Inner dististyle long and narrow, the beak blackened, narrowly obtuse; lower beak apparently lacking and evidently fused with the beak; outer basal lobe entirely pale, one face covered with abundant setulae and with a submarginal fringe of longer setae; upper apical angle narrowed into a small glabrous point. Gonapophysis appearing as a flat-

tened dark-colored blade, broadly obtuse at apex. Eighth sternite at apex bearing two low hemispherical lobes that are provided with unusually long yellow setae, the lobes separated from the sclerite by pale membrane.

Holotype: ♂; Adna, Lewis County, WASHINGTON, July 10, 1917 (Melander); in Melander Collection. *Paratype:* ♂; Steelhead, BRITISH COLUMBIA, May 21, 1933 (H. B. Leech).

Although allied to *Tipula* (*Oreomyza*) *pseudotruncorum* Alexander, likewise from the Pacific and Rocky Mountain northwestern states and provinces, the present fly is well-distinguished by the details of structure of the male hypopygium, particularly of the tergite and both dististyles. The hypopygial details of *pseudotruncorum* have been described and figured by the writer in another report (Amer. Midl. Nat., 33: 410; 1945). The present fly is evidently the species described and figured by Snodgrass (Trans. Am. Ent. Soc., 30: 211, pl. 16, figs. 132, 134; 1904) as *T.* (*O.*) *truncorum* Meigen, of Europe. I had formerly believed that Snodgrass's description referred to *pseudotruncorum* (Can. Ent., 52: 229; 1920) but evidently this is not the case.

Tipula (Lunatipula) saxemontana n. sp.

Size medium (wing, male, about 15 mm.); general coloration gray, the praescutum with four dark brown stripes; femora yellow, the tips infuscated; claws (male) toothed; wings with a strong brownish tinge, the stigma darker; conspicuous obliterative areas before and beyond the stigma and across the cord; abdomen orange-yellow, with a broad blackish median stripe and less conspicuous sublateral ones; male hypopygium with the tergite conspicuously notched; basistyle produced caudad into a long flattened blade, its tip obtuse; inner dististyle with the outer basal lobe a large subcircular blade that is produced into two pale points; eighth sternite sheathing, the emarginate apex fringed with abundant yellow setae.

♂. Length about 13–15 mm.; wing 14–16 mm.; antenna about 4.5–5 mm.

Frontal prolongation of head relatively long, nearly equal to the remainder of head, light brown, more pruinose at base; nasus exceedingly short to virtually lacking; first segment of

palpi brown, succeeding segments black. Antennae with scape and pedicel obscure yellow; first flagellar segment obscure brownish yellow, the tips narrowly blackened, remainder of organ black; flagellar segments rather strongly incised; longest verticils subequal in length to the segments. Head with anterior vertex buffy, posterior vertex gray, clearer gray on posterior orbits, the areas delimited internally by more blackish lines; a capillary dark brown median vitta.

Pronotum gray, with three brown spots. Mesonotal praescutum gray, with four conspicuous dark brown stripes, the intermediate pair representing the lateral borders of a slightly darker gray median area, the latter in front exceeding four times the width of the brown stripes, narrowed posteriorly; a slight darkening at the humeral region, the extreme margin of which is yellowed; scutum gray, each lobe with two brown areas; posterior sclerites of notum gray, the lateral border of the mediotergite and the pleurotergite more yellowish gray. Pleura gray, the dorsopleural membrane light yellow. Halteres with stem yellow, knob infuscated. Legs with the coxae light gray pruinose; trochanters yellow; remainder of legs variable in color, in some, including type, with the femora yellow, the tips infuscated, more broadly so on fore legs where about the outer two-thirds is included, more narrowly darkened on the fore and middle legs; in other specimens, the femoral tips are about equally darkened on all legs, including about the outer twelfth to fifteenth; tibiae yellowish brown, the tips narrowly blackened; tarsi black, the basitarsi extensively yellowish brown; claws toothed. Wings with a strong brownish tinge, the stigma darker brown; prearcular and costal fields a trifle more yellowish brown; conspicuous white obliterative areas before and beyond stigma and crossing a cord at the fork of M, the last largest; veins brown, pale in the obliterative areas. Venation: R_{1+2} entire; cell *1st* M_2 pointed at outer end; m oblique, a little shorter than the petiole of cell M_1.

Abdominal tergites orange-yellow, with a very broad blackish median stripe that is narrowly interrupted at the posterior borders and again at the similarly narrow yellowish gray bases of the segments; on intermediate segments a much less evident

sublateral dusky area, broadly interrupted on the posterior borders; lateral tergal margins broadly pale, more or less pruinose; sternites yellow, the intermediate segments broadly darkened medially, the posterior borders narrowly yellow; hypopygium dark chestnut red to almost blackish. Male hypopygium relatively large and conspicuous. Ninth tergite longer than broad, slightly narrowed outwardly, the posterior border conspicuously emarginate, including a narrow median incision and broader and shallower submedian notches; teeth adjoining the median notch acute; outer lateral angles less evidently incised. Ninth sternite with the appendage conspicuously bilobed, including a large oval lobule provided with abundant curved setae, those at apex shorter and more dense, and a small, more basal lobule that bears very elongate setae which are decussate at the midline. Basistyle entire, the outer portion produced caudad and mesad into a conspicuous flattened blade, its tip obtuse, usually broadly so, in cases approaching subacute. Outer dististyle a dark-colored flattened blade, with abundant long pale setae. Inner dististyle with the beak very obtuse, lower beak more pointed; dorsal crest narrow, its margin irregularly toothed; outer basal lobe very large and conspicuous, appearing a large subcircular blade, the outer portion produced into two conspicuous pale points; surface of blade with numerous long yellow setae. Eighth sternite sheathing but not projecting beyond the other elements of the hypopygium, the posterior border emarginate and fringed with abundant yellow setae.

Holotype: ♂; Grand Tetons, at Arizona Creek, WYOMING, altitude 6,800 feet, July 2, 1941 (C. P. Alexander). *Paratopotypes:* 4 ♂♂, altitude 6,790–6,800 feet, July 8, 1941; July 5, 1942 (C. P. Alexander); *Paratypes:* ♂, Invermere, BRITISH COLUMBIA, August 15, 1927 (A. A. Dennys); ♂♂, Yellowstone, Tower Falls, 6,400 feet, June 23, 1941, 2 ♂♂; Osprey Falls, 7,000 feet, June 25, 1941; Northeast Entrance, 7,200 feet, June 26, 1941 (C. P. Alexander); Rocky Mountain National Park, COLORADO, 11,000 feet, July 24, 1941, taken above timberline, flying above dwarf willows and mountain bog birch, *Betula glandulosa* Michx. (C. P. Alexander); Gothic, Colorado, 10,000 feet, July 15, 1934 (J. D. Hallahan).

This species has long been confused with *Tipula* (*Lunatipula*) *pleuracicula* Alexander 1915 (*arizonica* Alexander, 1916; *monochroma* Dietz, 1919) and I am particularly indebted to Dr. Alan Stone for examining the types of my species, now in the United States National Museum, and thus settling the identity of this well-marked fly. The above names all pertain to a smaller yellow crane-fly that is allied to *T.* (*L.*) *splendens* Doane, 1901, having the basistyle of the male hypopygium produced into a much more slender stiletto-like point than in the present species. In an earlier report (Amer. Midl. Nat., 30: 732; 1943) I had referred to the present fly as being *pleuracicula* and this name should be corrected to *saxemontana*.

Tick Collections at Army Installations in the Fourth Service Command

By Stanley J. Carpenter,[1] Roy W. Chamberlain[2] and Leonora Peeples,[3] Fourth Service Command Medical Laboratory, Fort McPherson, Georgia

Numerous collections of ticks have been made by Army personnel in the seven states comprising the Fourth Service Command during 1943, 1944, and 1945, and forwarded to the Fourth Service Command Medical Laboratory for identification. The states included in the Fourth Service Command are Alabama, Florida, Georgia, Mississippi, North Carolina, South Carolina and Tennessee.

The collections are summarized in Table 1. During 1943 to 1945, the following species were taken: *Amblyomma americanum* (Linnaeus), *A. dissimile* Koch, *A. tuberculatum* Marx, *Dermacentor albipictus* Packard, *D. variabilis* (Say), *Haemaphysalis leporis-palustris* Packard, *Ixodes ricinus scapularis* Say, *Rhipicephalus sanguineus* Latreille, and *Ornithodorus turicata* Duges. A total of 3,227 specimens, representing 47 localities, are included.

[1] Major, Sanitary Corps, Army of The United States.
[2] 2nd Lieutenant, Sanitary Corps, Army of The United States.
[3] SP-5, Medical Technician.

TABLE 1. Tick Collections in the Fourth Service Command, 1943–1945 (L = larva; N = nymph)

Species and Locality	Date	Host or Source	Number of Specimens Collected			
			L	N	Adults	
Amblyomma americanum						
FLORIDA						
Marianna	5/15–18/44	Dragging			3♂	5♀
	6/6–8/17/44			3	2♂	5♀
	9/28/44	Dog		1		
GEORGIA						
Hinesville	4/9–6/20/44	Man			2♂	5♀
MISSISSIPPI						
Biloxi	March, 1945					1♀
Centerville	6/27/44	Man		3	1♂	14♀
	6/27–8/15/44	Trap	788	714	4♂	7♀
Gloster	8/1–11/44	Man		2		
Hattiesburg	3/30/44	Man				1♀
	4/17/44	Cow				1♀
	4/23/44	Man				1♀
	5/15–6/10/44	Dog			1♂	21♀
NORTH CAROLINA						
Fayetteville	5/10/44				2♂	1♀
	3/29/44	Deer			3♂	
SOUTH CAROLINA						
Charleston	5/14–6/6/44				3♂	8♀
Debidue Beach	5/4–6/1/44	Man		3	2♂	1♀
Myrtle Beach	5/26–8/21/44	Man		11	42♂	36♀
	12/22/44	Fox			1♂	
	3/25–5/4/45	Man		13	14♂	15♀
Amblyomma dissimile						
GEORGIA						
Hinesville	2/9/44	Tortoise			3♂	
FLORIDA						
Boca Raton	2/29–11/2/44	Snake		2	5♂	7♀
Amblyomma maculatum						
FLORIDA						
Avon Park	8/28/43	Dragging				2♀
GEORGIA						
Hinesville	5/22/44	Man			1♂	
	8/31/44	Man			1♂	
	9/11/44	Dog				1♀
	9/26/44	Man				1♀
Macon	8/2/44	Dog			1♂	
Valdosta	8/20–9/30/43	Horse		1	6♂	13♀
MISSISSIPPI						
Gulfport	Sept., 1944				1♂	
Hattiesburg	6/6–8/10/44	Dog			1♂	1♀
	8/30/44	Man			1♂	

TABLE 1 (*Continued*)

Species and Locality	Date	Host or Source	Number of Specimens Collected		
			L	N	Adults
Amblyomma tuberculatum					
FLORIDA					
Boca Raton	6/25/43	Tortoise			1♂
	11/2/44	Tortoise			1♂
Carrabelle	5/18/44	Tortoise			1♀
	Nov., 1944	Turtle			2♂ 1♀
Dermacentor albipictus					
SOUTH CAROLINA					
Myrtle Beach	12/5/44	Deer			1♂
Dermacentor variabilis					
ALABAMA					
Ozark	5/16/44	Man			1♂
	Oct., 1944				1♂
FLORIDA					
Boca Raton	5/11/43				1♂
	10/27/44	Man			1♂
Panama City	4/14/44	House			1♂
	4/12/44	Dog			1♀
	5/20/44				1♂
	3/23/45	Man			1♀
W. Palm Beach	8/17–9/27/43	Man			1♂ 1♀
	9/17–11/16/43	Dog			2♂ 6♀
	3/31/44	Opossum			3♂ 2♀
	6/28–7/3/44	Raccoon			8♂ 8♀
	7/20/44	Dog			1♀
GEORGIA					
Atlanta	May, 1944				1♂
	8/29/44	Man			1♂ 1♀
Columbus	6/1–7/6/44	Man			1♂ 5♀
Decatur	6/13/45	Dragging			1♂ 2♀
	6/13/45	Dog			23♂ 7♀
Hinesville	4/11–6/27/44	Man			4♂ 2♀
Macon	5/18/44	Man			1♂
	5/22–8/2/44	Dog			6♂ 1♀
Ft. Oglethorpe	4/29/44				1♂
Savannah	5/5–6/28/44	Dog			8♂ 13♀
	May, 1944	Man			1♀
Valdosta	8/20/43	Horse			1♂
Warner Robins	May, 1944				2♂ 1♀
MISSISSIPPI					
Hattiesburg	5/15/44	Dog			1♂
	7/5–8/25/44	Man			6♂ 6♀
NORTH CAROLINA					
Durham	7/16/43	Man			1♂ 1♀
	5/2/44	Tent			1♂
	5/16–6/29/44	Man			4♂ 4♀
	6/21/45				1♂

TABLE 1 (*Continued*)

Species and Locality	Date	Host or Source	Number of Specimens Collected			
			L	N	Adults	
Dermacentor variabilis (Cont'd)						
NORTH CAROLINA						
Goldsboro	5/8–7/3/44	Dog			11♂	3♀
	6/13–22/44	Man			2♂	2♀
Hoffman	5/24–6/30/44	Dog			44♂	41♀
	6/1–23/44	Dragging			3♂	3♀
Maxton	June, 1944					1♀
	7/6/44	Man				1♀
Swannanoa	5/1–8/7/44	Dragging			7♂	5♀
Wilmington	6/17/44	Man			1♂	2♀
	6/9/44					1♀
SOUTH CAROLINA						
Columbia	8/9–12/44	Man			3♂	2♀
	8/18/44	Dog				1♀
Florence	July, 1944				1♂	
Myrtle Beach	4/2–8/29/44	Man			9♂	2♀
	7/31–8/14/44	Dog			2♂	
	3/28–5/26/45	Man			3♂	1♀
Spartanburg	6/21/44	Man			1♂	1♀
Sumter	9/19/43	Man				2♀
	4/15–26/44	Dog			3♂	1♀
TENNESSEE						
Paris	8/11/43	Bridge				1♀
	8/3/44					1♀
Haemaphysalis leporis-palustris						
FLORIDA						
Boca Raton	May, 1944					1♀
GEORGIA						
Macon	10/7/43	Rabbit				1♀
	4/3/45	Rabbit				1♀
NORTH CAROLINA						
Goldsboro	5/30/44	Man				1♀
TENNESSEE						
Bairds Mill	June, 1943	Rabbit			1♂	
Ixodes ricinus-scapularis						
FLORIDA						
Apalachicola	11/2/44	Man				1♀
Avon Park	Dec., 1944					1♀
Boca Raton	3/18/43				1♂	
	10/16/43					1♀
	1/1–31/45	Man			1♂	3♀
Daytona	1/6/45	Man			1♂	
Panama City	11/22–12/22/44	Man			3♂	1♀
	5/15/45	Man			1♂	
Venice	12/24/43	Man				1♀

TABLE 1 (*Continued*)

Species and Locality	Date	Host or Source	Number of Specimens Collected		
			L	N	Adults
Ixodes ricinus-scapularis (Cont'd)					
FLORIDA					
W. Palm Beach	1/25–2/26/45	Dog			3 ♀
	3/31/44	Opossum			2 ♂ 5 ♀
GEORGIA					
Hinesville	5/5–10/8/44	Man		2	1 ♀
Valdosta	2/9/44	Horse			1 ♂ 4 ♀
MISSISSIPPI					
Hattiesburg	1/8/44	Dog			1 ♀
	3/19/44	Man			1 ♀
SOUTH CAROLINA					
Myrtle Beach	10/28–12/2/43	Man			4 ♂ 7 ♀
	11/2/43	Deer			9 ♂ 12 ♀
	11/3/43	Fox			3 ♂ 3 ♀
	11/3/43	Dog			9 ♀
	1/27–5/10/44	Man			2 ♂ 8 ♀
	12/12–22/44	Deer			6 ♂ 7 ♀
	12/22/44	Fox			2 ♂ 2 ♀
	1/5–4/17/45	Man			5 ♀
	1/14/45	Cat			2 ♂ 2 ♀
	3/12/45	Dog			1 ♂
Rhipicephalus sanguineus					
ALABAMA					
Selma	9/14/44	House			6 ♀
FLORIDA					
Daytona	11/14/44	Dog			27 ♂ 19 ♀
Marianna	3/24/44	Dragging			1 ♂
W. Palm Beach	8/11–12/26/43	Dog		7	36 ♂ 75 ♀
	1/8–10/11/44	Dog			19 ♂ 25 ♀
	1/24/44	Man		1	
GEORGIA					
Albany	10/20/43	Dog			4 ♂ 3 ♀
Atlanta	6/23/43	Dog			6 ♂ 14 ♀
Atlanta	6/26/45	House			1 ♂
Augusta	8/24/44	Dog		13	
Columbus	9/22/43	Dog			15A
	Nov., 1943	Dog			6A
	1/15–6/24/44	Dog		33	70 ♂ 110 ♀
	7/3–12/13/44	House		61	61 ♂ 60 ♀
	8/29/44	Man			1 ♀
	1/24–3/5/45	House		14	23 ♂ 26 ♀
Hinesville	March, 1945	House			1 ♀
Macon	9/18–11/29/43	Dog		2	6 ♂ 15 ♀
	3/20/45			13	4 ♂ 5 ♀
Savannah	3/15–8/24/44	Dog			3 ♂ 4 ♀
Ft. Screven	Oct., 1943				3 ♂ 2 ♀

TABLE 1 (*Continued*)

Species and Locality	Date	Host or Source	Number of Specimens Collected		
			L	N	Adults
Rhipicephalus sanguineus (Cont'd)					
MISSISSIPPI					
Biloxi	8/6/43	House			6A
Flora	Sept., 1944			14	
Hattiesburg	1/29–6/10/44	Dog		7	37♂ 68♀
Jackson	10/2/43	House			6♂ 5♀
NORTH CAROLINA					
Fayetteville	2/1/44	House		2	
Swanannoa	8/22/43	House		18	10♂ 13♀
	1/26–3/28/44	Dog			10♂ 11♀
SOUTH CAROLINA					
Columbia	8/29/43	House			3♂ 10♀
Myrtle Beach	2/20/44	House			1♂
Ornithodorus turicata					
FLORIDA					
W. Palm Beach	5/18/44	Tortoise			1♀

Dragonflies (Odonata) Collected in Pennsylvania and New Jersey in 1945

By GEORGE H. BEATTY, III, Merion, Pennsylvania

(*Continued from page 56*)

Erythrodiplax berenice Drury.

NEW JERSEY: Upton Ponds, 1 ♂, 22 July.

This individual had apparently wandered from its normal brackish habitat.

Libellula deplanata Rambur.

NEW JERSEY: Whitesbog, 1 ♀, 29 April; Upton, 2 ♂, 4 ♀, 13 May; 8 ♂, 20 May; 1 ♂, 24 June; Whitesbog, 1 ♂, 1 ♀, 29 June.

Since *exusta* Say and *deplanata* Rambur are evidently forms of the same species, these specimens from New Jersey, the tension zone of the two forms, combine the characters of both. At all manner of small ponds, ditches, and sand pits, *deplanata* was abundant in May.

Libellula julia Uhler.

PENNSYLVANIA: Bear Meadows, 16 June (seen).

Several dragonflies which could be identified as this species with reasonable certainty on the basis of the chalky white stripes on the dorsum of the thorax were seen flying swiftly about over the sluggish stream which flows through the meadows.

Libellula luctuosa Burmeister.

PENNSYLVANIA: Central Square, 1 ♂, 25 May; also seen at the following: Central Square, 29 May, 6 June; State College, 17, 19 June; Crum Creek Farm, 8 August; Central Square, 10 August; Westtown Lake, 3 Sept.

Libellula auripennis Burmeister.[8]

NEW JERSEY: Upton Ponds, 1 ♀, 29 June; seen at Upton Ponds, 30 June, 12 August.

Libellula cyanea Fabricius.

NEW JERSEY: Whitesbog, 1 ♂, 24 June; seen at Whitesbog, 29 June; Whitesbog, 4 ♂, 1 ♀, 8 July; seen at Whitesbog, 22 July.

Libellula flavida Rambur.

NEW JERSEY: Whitesbog, 3 ♂, 1 ♀, 8 July; 1 ♀, 22 July.

This species was seen ovipositing in very small ditches, in the cranberry bogs, which were found to be dried up on 12 August. No *flavida* were seen about the larger ditches.

Libellula semifasciata Burmeister.

PENNSYLVANIA: Wyola, 2 ♂, 1 ♀, 26 Apr.; 1 ♀, 17 May; Broomall, 1 ♂, 1 ♀, 22 May; 1 ♀, 26 July; and seen at Wyola, 22, 25, 29 May; Broomall, 25, 29 May; Bear Meadows, 16 June.

NEW JERSEY: Upton, 1 ♀, 29 Apr.; 1 ♀, 13 May; seen at Upton, 20 May; Upton Ponds, 24, 29, 30 June, 8 July, 12 August; Whitesbog, 24 June, 8 July.

[8] Although the writer is reluctant to discard a name of long standing, *Libellula needhami* Westfall should be probably substituted for *L. auripennis*. See Westfall, M. J., Jr., Synonymy of Libellula auripennis and L. jesseana, and the description of a new species [Trans. Amer. Ent. Soc., 68: 17-31, 1 pl., 1943].

Libellula pulchella Drury.

PENNSYLVANIA: Broomall, Penn Valley, and seen at Central Square, Wyola, State College, Bear Meadows, Spring Creek, and Crum Creek Farm, Holmes, 6 June–21 September.

NEW JERSEY: Upton Ponds, and seen at Whitesbog, Fisher's Dam, Atsion Lake, Folsom, and Lily Lake, 24 June–22 September.

Libellula quadrimaculata Linne.

PENNSYLVANIA: Bear Meadows, 1 ♂, 16 June.

Quadrimaculata was quite abundant and widely distributed in the bog area. Females were seen ovipositing in small pools in the sphagnum moss.

Libellula incesta Hagen.

NEW JERSEY: Upton, 1 ♂, 30 June; Fisher's Dam, 2 ♂, 21 Aug.; 3 ♂, 1 ♀, 28 Aug.; 1 ♂, 31 Aug.; 1 ♂, 4 Sept.; Batsto Pond, 1 ♂, 7 Sept.; and seen at Pond near Fisher's Dam, 31 Aug., 4, 7 Sept.; Branch of Friendship Creek, 31 Aug., 4 Sept.; Batsto Pond, 5 Sept., and Whitesbog, 24 June, 8 July.

Libellula vibrans Fabricius.

PENNSYLVANIA: Glenolden, Delaware Cy., 1 ♀, 31 Aug. (J. Gillespie).

Libellula lydia Drury.

PENNSYLVANIA: Broomall, Wyola; and seen at Central Square, State College, Crum Creek Farm, Westtown Lake, 26 April–3 September.

NEW JERSEY: Upton; and seen at Whitesbog, Upton Ponds, 29 Apr.–12 Aug.

Sympetrum ambiguum Rambur.

NEW JERSEY: Batsto Pond, 1 ♀, 5 Sept.; Erma, 1 ♀, 22 Sept.

These were the only individuals of *ambiguum* seen in 1945. The species was abundant in southeastern Pennsylvania, southern New Jersey, and Maryland in 1944, many specimens having been collected in localities where it had never been seen before.

Sympetrum obtrusum Hagen.

PENNSYLVANIA: Holmes, 1 ♂, 21 Sept.; Tinicum Marshes, 4 ♂, 26 Sept.; 15 ♂, 29 Sept.; 2 ♂, 8 October.

NEW JERSEY: Erma, 1 ♂, 22 Sept.

The intergradation between this and the following species makes positive identification almost impossible in many cases. The notch of the hamuli varies from one sixth to one third of the total length and the facial color varies from pale brown and grayish white to ivory and pure china-white. The difficulty arises when some of the individuals with the whitest faces are found to have deeply notched hamuli and those with very shallow notches to have brown faces. The specimens cited above have been segregated upon the basis of hamular structure alone since both cyanide fumes and drying may have affected the facial color. Such intergradation as this suggests that *obtrusum* and *rubicundulum* are not specifically distinct or that extensive hybridization occurs. The fact that *obtrusum* is on the extreme edge of its geographic range may contribute to this extreme variability. The New Jersey record is from a point which is often considered a part of the Lower Austral (Austroriparian) zone [9] and represents the first recorded occurrence of *obtrusum* in that zone.

Sympetrum rubicundulum Say.

PENNSYLVANIA: Broomall, Penn Valley, State College, Spring Creek, Echo Valley Farm, Darby Creek, Westtown Lake, Holmes, Tinicum Marshes, 17 June–8 October.

NEW JERSEY: Upton, Batsto Pond, Erma, Cape May City, 12 August–22 September.

Sympetrum semicinctum Say.

PENNSYLVANIA: Broomall, 1 ♀, 26 July; 1 ♀, 1 August; Penn Valley, 1 ♂, 30 August; seen at Broomall, 8 August.

Sympetrum vicinum Hagen.

PENNSYLVANIA: Broomall, Holmes, Tinicum Marshes, etc., 16 July–8 October.

NEW JERSEY: Upton, Whitesbog, Upton Ponds, Fisher's Dam, Pond near Fisher's Dam, Batsto Pond, Cecil, and seen at Atsion Lake, Cape May Point, 8 July–22 September.

[9] See Merriam, "Life Zones and Crop Zones of the United States" (1898). On the basis of total growing heat (sum of daily excesses over 43° F.), the Cape May peninsula qualifies as part of the Lower Austral Zone by having a t.g.h. which in most years is slightly over 18,000°. See also Clark [U. S. N. M. Bull. 157: p. 18, 1932], Forbes [Cornell Univ. Agr. Exp. Sta. Memoir 68, p. 17, 1923], Stone [Rept. N. J. State Mus., 1910, p. 41, 1911].

Leucorrhinia intacta Hagen.

PENNSYLVANIA: Bear Meadows, 1 ♂, 16 June; State College, 1 ♂, 17 June.

NEW JERSEY: Seen at Whitesbog, Upton Ponds, 24 June.

Leucorrhinia hudsonica Selys.

PENNSYLVANIA: Bear Meadows, 17 ♂, 6 ♀, 16 June.

Taken for the first time in Pennsylvania, this species was previously known from Maine, Franconia, New Hampshire, northern New York, the upper peninsula of Michigan, northern Wisconsin [10] and northward, and at high altitudes in the western U. S. It is widely distributed in the Canadian Zone but attains its greatest abundance in the Hudsonian, where it occurs in swarming hordes. At Bear Meadows, scores were seen beside those collected, including many ovipositing females and pairs in coitu. This is scarcely compatible with the idea that this locality belongs to the Transition Zone as has been hitherto taken for granted. In spite of its latitude and low altitude (1824') the affinities of the Bear Meadows are decidedly with the Canadian Zone.

Everywhere in the great sphagnum bog *hudsonica* was in evidence, increasing in numbers throughout the day until at about four o'clock its abundance was positively distracting. Many females were teneral or juvenile, suggesting that peak abundance had not yet been reached. This species outnumbered *intacta* in a proportion of twenty or more to one.

Leucorrhinia frigida Hagen.

NEW JERSEY: Upton Ponds, 1 ♂, 24 June.

This is the first capture of *frigida* in New Jersey and the southernmost but for one in Pennsylvania.[11] It was the only *frigida* seen in 1945.

[10] See Borror [Ent. News, LI: p. 79, 1941], Leonard (Ed.) [Cornell Univ. Agr. Exp. Sta. Memoir 101: p. 56, 1926], Combs [Occ. Pap. Mus. Zool., Univ. Mich., 41: p. 7, 1917], and Muttkowski [Bull. Wisc. Nat. Hist. Soc., 6: p. 112, 1908] respectively, for records of these occurrences which, by their very paucity, indicate that they are on the extreme southern edge of the range of *hudsonica*.

[11] See footnote 5.

Pachydiplax longipennis Burmeister.

PENNSYLVANIA: Broomall, Central Square, Bear Meadows; seen at State College, Crum Creek Farm, 22 May–8 August.

NEW JERSEY: Whitesbog, Upton Ponds, Batsto Pond, Cape May City; and seen at Fisher's Dam, Pond near Fisher's Dam, 24 June–22 Sept.

Erythemis simplicicollis Say.

PENNSYLVANIA: Central Square; and seen at Echo Valley Farm, Crum Creek Farm, 25 May–10 August.

NEW JERSEY: Upton Ponds, Fisher's Dam; seen at Batsto Pond, Lily Lake, Whitesbog, 24 June–22 September.

Pantala flavescens Fabricius.

PENNSYLVANIA: Tinicum Marshes (seen), 26, 29 Sept., 5 October.

NEW JERSEY: Upton Ponds, 1 ♂, 24 June; Cape May City, 1 ♀, 22 Sept.; and seen, Cape May Point and Lily Lake, 22 Sept.

This species was abundant at Cape May, apparently being part of the autumnal migration.

(To be continued)

A Translation of the Introduction and Preface to Meigen's 1800 Paper on Diptera [1]

BY JANET L. C. RAPP

At a time when Dipterists are in danger of losing the familiar family names in favor of those which have so-called priority, it seems worth-while to publish a translation of the introduction and preface to Meigen's 1800 paper on Diptera. A translation in itself might be of little value, since the French is not difficult, were it not for the fact that the paper is not generally available. The copy used for this translation belongs to the University of Illinois Library and is a photostat of an original copy owned by the Academy of Natural Sciences, in Philadelphia.

From a rapid reading alone one can easily understand that Meigen did not intend this for a great work, that it was merely a sample or prologue. Indeed it was not written for the learned

[1] Contribution No. 256 from the Department of Entomology, University of Illinois, Urbana, Illinois.

entomologists of the day, but for the amateurs. For this reason he even used a different system of classification from the one planned for his advanced work, so that they could more readily comprehend. Furthermore, it was only because of the urging of his friend Baumhauer that he even published at that time. Baumhauer believed that the idea would be so well accepted that his friend would drop the study of Botany, which was occupying all of his time, and return to the classifying of Diptera. Note, however, it was the idea of work along this line and not the actual work accomplished that was important.

The author has attempted to gain an English version as close to the original French as possible. Sometimes, of course, this leads to rather stilted English. Occasionally a rather free translation has been substituted for too clumsy a literal one.

This paper appeared as a pamphlet of 40 pages published by J. J. Fuchs in Paris in 1800.

New Classification of Flies with Two Wings (Diptera L.) After an Entirely New Plan

By J. G. Meigen

Introduction

The author of this small sample, Citizen Meigen, having been collecting indigenous insects for a long time, principally applied himself to observing those of the class Diptera, or flies with two wings. The preference which he showed for them, comes from his ardent desire to clarify, by repeated and sustained observations, this interesting branch of entomology, still in the cradle and open to quantity of new discoveries. Consequently, he began to draw all the Diptera which he was able to collect, as well as the most remarkable parts of the body, gross or microscopic, such as the wings, the feet and the proboscis.—In examining these parts in the greatest detail, he soon observed that the genera of Diptera, comprised in the best known methods, were insufficient for adding to them this or that species; that their characteristics were too general, too ambiguous; and that they often included species which did not have any relationship between themselves. Thus, is it necessary to acknowledge that

this part of entomology was only outlined and that nothing less than a sustained attention, a patience without bounds, was necessary to examine so scrupulously, not to say minutely, all the visible parts of the insect, in imitation of my friend; and to establish after that and his drawings, the characteristics of each of the genera contained in this sample? Among all the parts which make up the body of a dipteran, the wings, by their singular structure and the branching of their veins infinitely varied but always constant in the species of the same genus, seemed to him more suitable than any other less apparent part to form the essential characteristics of each genus. He imparted to me his plan which seemed to me good and unique. I encouraged him with my best wishes, and gave him some Diptera collected on a journey in Italy, a country extremely rich in insects, but, on the other hand, very poor in zealous or intelligent observers.

Before his work advanced, to my regret, major affairs compelled him to suspend it. I tried at various times to make him take it up again, but uselessly: botany then exclusively occupied all his moments of leisure. This science offered a more vast field for his active and curious spirit. Finally at my return from Paris, where I had had the honor of meeting several distinguished entomologists who liked his plan, I returned to the charge and ended by persuading him to publish, not the entire work (an enterprise so costly it would have exceeded, at the moment, his energies and his means) but at least a kind of preamble, which would be able to serve as the introduction of the work, and which, so as not to anticipate the end, would contain absolutely only the genera. As I had to return to Paris, he gave me the task of having it printed. I will do this with pleasure, knowing by experience that the most insignificant entomological treatise more or less attracts the attention of amateurs.

Thus, here is the small sample that I offer them hoping that it will merit their approbation and that, encouraged by so powerful an incentive, Citizen Meigen will with a new ardour again take up his planned work on the Diptera, and will enrich by his discoveries this part of entomology still so little studied. However, before ending, I ought to fix the attention of the

naturalist for a moment on the last genus of the classification, named *Cyanea:* its simple and unique character, *without antennae,* is very striking; also should it seem strange to him, when he knew nothing of it, that until this day, neither Linnaeus nor Fabricius has made mention in their immortal nomenclatures of a single species of Diptera which was devoid of this organ.—This exception to the general rule is, however, although one doubts it, beyond doubt; for, besides the species of which the author speaks, I have discovered another of them in the neighborhood of Aix-la-Chapelle, in the month of messidor, year 6 (10th month of the first republican calendar, beginning on the 19th of June) which will be figured in his time in the planned work.—This important observation, at the same time that it alters the generally held opinion that in the insects the artistically organized antennae serve too as the seat of one or several senses, will again confirm this constant truth, that Nature, in her works, loves to deviate from rules that we attribute to her so freely. In noticing the progressive reduction in the length of the antennae in the different genera of Diptera (for example, Hippobosca which has very small ones), the observer could very well infer the existence of a fly in which the antennae would be lacking or at least imperceptible to our eyes without the aid of better microscopes.

Moreover, if the amateur has some liking for me for having made known to him a zealous entomologist, he will undoubtedly pardon me for saying a word about a small collection of Lepidoptera collected quite some time ago in my native country, and always enlarged on my different journeys in Germany, Italy, and Switzerland. I wait before eventually giving a systematic catalogue of it; while waiting I beg the amateur to be persuaded that I will yield with pleasure to the method of exchanges; a method so simple and so customary, for procuring without cost, the indigenous species which are lacking to one or the other of two parties. Plate 141, Noct. 62 as well as the 84th Contin. Bomb. Tab. 5, fig. 1 of the German work of Esper, on European Lepidoptera where five depicted species are found that I have imparted to the author, among others *Noctua orichalcea* Fabricius which, according to him, is found at Tranguebaren in

Asia, can give connoisseurs an idea of my collection, as well as the richness yet unknown and existing in Italy, their native country.

Paris, Messidor 10, year 7
M. BAUMHAUER

Preface

Seven years have passed since, in contemplating my small collection of flies with two wings, the idea came to me of making a new classification based on the veins or nerves of the wings. I told my idea to several amateurs who approved it. Accordingly, I began to make colored drawings of these small creatures and to arrange them. I soon saw that a system formed after this plan would be in much better accord with the first stages and the metamorphosis of these insects than are all those made up to the present. I planned to publish my observations some day when they would be sufficiently increased. The present sample is regarded as the introduction of this work, with the difference that, instead of taking as the characters of genera the veins of the wings, I have substituted here other characters more within the scope of amateurs. All the species found here have been discovered in our countries, with the exception of a small number, indigenous in Italy, which have been imparted by a zealous amateur, Citizen Baumhauer, from Aix-la-Chapelle. It is evident that by adding exotic species, the number of genera would be much larger; but I do not know any of them except by descriptions or rather inexact figures.

I beg the connoisseurs and amateurs to judge with indulgence this first sample which will be followed, if it secures me their approbation, by a work much more developed and enriched with exact figures, which will all be made after life. Moreover, I will spare nothing to rectify the errors which may have slipped into this small pamphlet, in order to clarify this branch of natural history, insofar as it will depend on me.

Holberg, near Aix-la-Chapelle
The first of Germinal—year 7
(7th month of the calendar of the first French Republic from 21 March to 19 April).

Personal

DR. R. E. SNODGRASS is visiting lecturer at the University of Minnesota during the present quarter. Although he has been on the retired list of the Bureau of Entomology and Plant Quarantine since last summer, Dr. Snodgrass has continued his researches as usual at his new office in the United States National Museum and has also retained his connection with the University of Maryland. His "Anatomy of the Fleas" has just appeared (Smithsonian Miscellaneous Collection, vol. 104, no. 18, 89 pages, 21 plates) and other works are in preparation. Dr. Snodgrass was elected a correspondent of the Academy of Natural Sciences in 1945.

Current Entomological Literature

COMPILED BY CHARLES HODGE IV, EDWIN T. MOUL, MAURICE E. PHILLIPS AND HENRY K. TOWNES JR.

Under the above head it is intended to note papers received at the Academy of Natural Sciences of Philadelphia and the University of Pennsylvania, pertaining to the Entomology of the Americas (North and South), including Arachnida and Myriopoda. Articles irrelevant to American entomology will not be noted; but contributions to anatomy, physiology and embryology of insects, however, whether relating to American or exotic species will be recorded.

This list gives references of the current or preceding year unless otherwise noted. Continued papers, with few exceptions, are recorded only at their first installment.

For records of Economic Literature, see the Experiment Station Record, Office of Experiment Stations, Washington. Also Review of Applied Entomology, Series A, London. For records of papers on Medical Entomology, see Review of Applied Entomology, Series B.

NOTE: The figures within brackets [ ] refer to the journal in which the paper appeared, as numbered in the List of Journals given at the end of the literature. The number of the volume, and in some cases, the part, heft, &c. is followed by a colon (:). References to papers containing new forms or names not so stated in titles are followed by (*): if containing keys are followed by (k): papers pertaining exclusively to Neotropical species, and not so indicated in the title, have the symbol (S).

Papers published in ENTOMOLOGICAL NEWS are not listed.

GENERAL—Anon.—Chronological list of works of Auguste Lameere. [21] *7*: 205–268. **dos Passos, C. F.**—Photography of types of Lepidoptera. [9] 40: 166–169. **Heegaard, P.**—Phylogeny of arthropods. [6] 37A (no. 3): 1–15. **Jones, S. E.**—Variations in abundance of invertebrates in Wm. Trelease woods. [1] 35: 172–192. **Kennedy, C. H.**—Use of ether in collecting ants. [20] 46: 10–12. **Knowlton, G. F.**—Cats eat grasshoppers (attracted to lights). [9] 14: 18–19. **Rau, P.**—Encyclopedias again. [9] 41: 6–7. **Wolfenbarger, D. O.**—Dispersion of small organisms. [1] 35: 1–152.

ANATOMY, PHYSIOLOGY, MEDICAL—Airy Shaw, H. K.—Hyalopterus dactylidis Hayh. and Hyalopteroides

pallida Theob. (Hem.-Hom.). [13] 74: 30–35. **Barnes, S.**—Influence of biological factors on resistance of bed bugs to D.D.T. [10] 36: 419–422. **Brindley, T. A.** et al.—The pea weevil and methods for its control. [Farmers Bull.] No. 1971, U. S. D. A. **Ferreira Lima, A. D.**—Schistocerca paranensis in Brazil. [7] 1: 139–145. **Goodrich, E. S.**—The study of nephridia and genital ducts since 1895. (Continued) Arthropoda. [26] 86: 303–324, ill., 1945. **Hovanitz, W.**—Note on the direction of flight of butterflies in northern Florida. [9] 40: 170–171. **Leclercq, J.**—Effect of atmospheric humidity on eggs of Carausius (Dixippus) morosus Br. [24] 21: 3–5. **Podtiaguin, B.**—Data for the medical and veterinary study of mosquitoes in Paraguay. [27] 6: 51–61. **Rapp, J. L. C. & W. F, Jr.**—Preliminary list of spiders of the great swamp. [9] 41: 4–5. **Rau, P.**—Notes on the behavior of a few solitary wasps. [9] 41: 10–11. **Roonwal, M. L.**—Metasternal interspace a phase character in Schistocerca gregaria (Forsk.). [24] 21: 13–15. **Severin, H. C.**—Grasshoppers ovipositing in a pile of coal. [9] 40: 159–160. **Smith, M. R.**—Ant Host of the fungus Laboulbenia formicarum Thaxter. [23] 48: 29–31. **Watson, J. R.**—Distributional notes on two species of Thysanoptera. [14] 28: 53. **Wellington, W. G.**—Laboratory method for determining the minimum active temperatures of insects. [11] 77: 135–136.

ARACHNIDA & MYRIOPODA—Chamberlin, R. V.—Two new species of the milliped genera Chonaphe and Aniulus. [22] 59: 31–34. **Chamberlin, R. V.**—New American genus in the chilopod family Himantariidae. [22] 59: 35–38 (*). **Clark & Zetek.**—The Onychophores of Panama and the Canal Zone. [25] 96: 205–213. **Ewing, H. E.**—Notes on American chiggers. [22] 59: 21–28 (*). **Farner, D. S.**—Note on a gravid Trombiculid mite. [23] 48: 32–34. **Gertsh & Davis.**—Spiders from Mexico v. [2] 1313: 1–11 (*). **Goodnight, C. J. & M. L.**—Phalangid fauna of Mexico. [2] 1310: 1–17 (*). **Hoff, C. C.**—Notes on pseudoscorpions from Illinois. [28] 38: 103–110. **Jellison, W. L.**—A new mite, Laelaps aplodontiae from Aplodontia, ill. [15] 31: 373–374. **Kaston, B. J.**—North American spiders of the genus Ctenium. [2] 1306: 1–19 (*). **Mello-Leitão, C. de.**—Three new species of Gasteracanthinae. [3] 17: 261–267, +1 table (S). **Rapp, J. L. C. & W. F., Jr.**—(See Anat., etc.). **Wharton, G. W.**—Two new species of Acariscus: A. pluvius and A. anous (Acarinida, Trombiculidae). [15] 31: 401–405, ill.

SMALLER ORDERS AND ORTHOPTERA—Beatty, G. H., III.—Odonata collected and observed in 1945 at two artificial ponds at Upton, New Jersey. [9] 40: 178–187. **Boder, R.**—Beitrag zur Kenntnis der Thysanopteren—Fauna von Basel und Umgebung. [29] 53: 136–218, ill. **Ferreira Lima, A. D.**—(See Anat., etc.). **Gisin, H.**—Hilfstabellen zum bestimmen der holarktischen Collembolen. [29] 55: 1–130, ill., 1943 (k). **Handschin, E.**—Materialien zur Revision der Collembolen. Die Gattung Ceratrimeria C. B. sensu Womersley. [29] 53: 265–284, ill. **Hanson, J. F.**—Morphology and taxonomy of Capniidae (Plecoptera). [1] 35: 193–245 (*). **Knowlton, G. F.**—Pygmy mole cricket. [9] 40: 169. **Knowlton, G. F.**—Neuroptera in light trap. [9] 41: 19. **Leclercq, J.**—(See Anat., etc.). **Needham, J. G.**—Some dragonflies of early spring in South Florida. [14] 28: 42–47. **Roonwal, M. L.**—(See Anat., etc.). **Severin.**—(See Anat., etc.). **Silvestri, F.**—Thysanura of Peru, with two new Argentine species. [8] 4: 444–458. **Werneck, F. L.**—Os tricodectideos dos Roedores (Mallophaga). [17] 42: 85–150, ill., 1945 (*).

HEMIPTERA—Airy Shaw, H. K.—(See Anat., etc.). **Barnes, S.**—(See Anat., etc.). **DeLong, D. M.**— Mexican species of Idiodonus (Homoptera–Cicadellidae). [20] 46: 13–30. **Drake & Hambleton.**—New species and new genera of American Tingidae (Hemiptera). [22] 59: 9–16. **Drake & Harris.**—A New Mesoveliid from Ecuador. [9] 41: 8–9. **Knowlton, G. F.**—Pseudoepameibaphis Aphid Records. [9] 41: 5. **Knull, D. J.**—Erythroneura of the Obliqua group from Ohio and Tennessee (Homoptera: Cicadellidae). [20] 46: 45–49. **Zavaleta, R. D.**—Siphunculata from birds. [4] 16: 431–434 (S*). **Zavaleta, R. D.**—Gliricola mexicana n. sp. of Gyropidae. [4] 16: 435–444 (S). **Zavaleta, R. D.**—New species of Esthiopterum (Anoplura). [4] 16: 445–449 (S).

LEPIDOPTERA—dos Passos, C. F.—(See General.) **Heinrich, C.**—N. sp. of Keiferia on eggplant. [23] 48: 35–36. **Hovanitz, W.**—(See Anat., etc.). **Rogers, W. P.**—Some autumn visitors. [9] 41: 14. **Silvestri, F.**—New genus of termitophilous Tineidae of Brazil. [8] 5: 243–251 (*). **Watson, J. R.**—Some August skippers of the Great Smoky Mountain National Park and vicinity. [14] 28: 50–53.

DIPTERA—Bohart, R. M.—New species of mosquitoes from the Marianas and Okinawa. [22] 59: 39–46. **Brumpt**

& Dao Van Ty.—Distribution des biotypes d'Anopheles maculipennis en France. [5] 19: 69–73, 1942. **Brumpt, E.**—Mécanisme d'éclosion des Moustiques. [5] 18: 75–94, ill., 1941. **Callot, J.**—Sur Culex hortensis and Culex apicalis à Richelieu (Indre-et-Loire). [5] 19: 129–141, ill., 1942–43. **Callot & Dao Van Ty.**—Localités françaises nouvelles pour Culex Theileri, Culex (Barraudius) modestus et Culex (Neoculex) impudicus. [5] 19: 142–150, ill. **Causey & Damasceno.**—Estudo sobre flebotomus no vale Amazonico. Part II. Descricao de F. dunhami, F. melloi et F. wagleyi. (Diptera: Psychodidae.) [17] 42: 17–29, ill., 1945. **Cerqueira & Paraense.**—Una nova especie de Aedes transmissora de Plasmodium gallinaceum. [17] 42: 11–15, ill., 1945. **Coutinho, J. O.**—Contribucao para o estudo dos vetores de malaria no Brasil, Anopheles (Nyssorhynchus) darlingi Root, em campos, no estado do Rio. [17] 42: 263–280, 1945. **Fattig, P. W.**—Tabanidae of Georgia. [12] 4: 1–26. **Galliard, H.**—Sur le mécanisme d'éclosion des nymphes de Culicides. [5] 18: 247–250, ill., 1941. **Galliard, H.**—Particularités du developpement de la nymphe de Ficalbia metallica. [5] 18: 245–246, ill., 1941. **Hill, R. B. & C. M.**—Phoriomyia hirsuta, a n. sp. from Jamaica. [23] 48: 39–41. **King & Hoogstraal.**—Two n. sp. of Aedes (Finlaya) from New Guinea. [23] 48: 37–38. **Paraense, W. L.**—A transmissao se Plasmodium gallinaceum pelo Aedes. (Ochlerotatus) lepidus. [17] 42: 81–84, 1945. **Pechuman, L. L.**—New species of Glutops. [11] 77: 134–135. **Podtiaguin, B.**—(See Anat., etc.). **Rapp, W. F. Jr.**—Catalogue of the types of genera and subgenera of Psychodidae. [9] 40: 172–177. **Rapp, J. L. C.**—The Stratiomyidae of New Jersey. [9] 40: 188–191. **Ristorcelli & Dao Van Ty.**—Morphologie de la femelle de Phlebotomus panamensis Shannon, 1926. [5] 18: 67–71, ill., 1941. **Ristorcelli & Dao Van Ty.**—II. Phlébotomes d'une region de Colombie où la veruga du peron est devenue endemique depuis trois ou quatre ans. [5] 18: 72–74 1941 (*). **Ristorcelli & Dao Van Ty.**—III Phlebotomes d'une region de Colombie ou la verruga du peron est devenue endemique depuis deux ou trois ans. [5] 18: 251–269, ill. (*). **Seguy, E.**—Étude biologique et systematique des sarcophagines myiassigenes du genre Wohlfahrtia. [5] 18: 220–232 (k*) ill., 1941. **Seguy, E.**—Insectes diptères du genre Hippelates Loew recueillis en Colombie et au Venezuela—liste et caractéres des espéces. [5] 18: 233–244 (k) ill., 1941. **Wilcox, J.**—New Nicocles with a key to the species (Diptera, Asilidae). [9] 40: 161–165.

COLEOPTERA—Balfour-Browne, J.—Aquatic Coleoptera of Oceania. [19] 18: 103–132. **Brindley, T. A.**—(See Anat., etc.). **Brown, W. J.**—Food plants and distribution of Calligrapha in Canada. [11] 77: 117–133 (*). **Fender, K. M.**—A n. sp. of Podabrus. [9] 41: 12. **Fisher, W. S.**—Synopsis of the cerambycid beetles of genus Stenosphenus Hald. in America north of Mexico. [16] 36: 86–93 (*). **Islas, S. F.**—New genus and three new species of Mexican Aphodiinae. [4] 16: 451–457. **Landeiro, R.**—A broca da peroba (Stizocera plicicollis). [7] 1: 123–126 (S). **Saylor, L. W.**—New genus and species in the Melolonthinae from Guatemala. [23] 48: 41. **Saylor, L. W.**—Revision of the scarab beetles of the genus Dichelonyx. [9] 40: 137–158 (k). **Saylor, L. W.**—A New West Indian Scarab. [9] 41: 1–3. **Silvestri, F.**—New genus of termitophilous Scarab from Brazil. [8] 3: 344–353 (*). **Zimmerman, E. C.**—Two new Storeus from the Philippines (Coleoptera, Curculionidae). [19] 18: 139–144. **Zwaluwenburg, R. H. van.**—Notes on Samoan Elaterid beetles. [19] 18: 95–101 (*).

HYMENOPTERA—Gomes, J. G.—A new chalcid. (Minapis pseudonigra n. sp.) [7] 1: 127–129 (S). **Pate, V. S. L.**—New Pemphilidine wasps. I Ectemnius. [18] 171: 1–14. **Pate, V. S. L.**—On two species of Oxybeles at Washington, D.C. [9] 40: 165. **Pate, V. S. L.**—Vernacular vs. Latin names in the Bees. [9] 41: 13. **Pate, V. S. L.**—The species of the Gorytine Genus Trichogorytes. [9] 41: 15–17. **Rau, P.**—(See Anat., etc.). **Smith, M. R.**—(See Anat., etc.).

LIST OF JOURNALS CITED

1.—American Midland Naturalist. 2.—Amer. Museum Novitates. 3.—Anais Acad. Brasil. Cien., Rio. 4.—Anals Inst. Biol. Mexico. 5.—Annales d. Parasit., Paris. 6.—Arkiv for Zoologi (Stockholm). 7.—Boletin Fitossanitario. 8.—Boll. d. Lab. Entom. Agrar. d. Portici. 9.—Bull. Brooklyn Entom. Soc. 10.—Bull. Entom. Res. 11.—Canadian Entomologist. 12.—Emory Univ. Mus. Bull. 13.—Entom. Monthly Mag. 14.—Florida Entomologist. 15.—Journ. Parasitology. 16.—Jour. Wash. Acad. Sci. 17.—Mem. Inst. Osw. Cruz. 18.—Notulae Naturae. 19.—Occas. Papers Bishop Mus. 20.—Ohio Jour. Science. 21.—Précis de Zoologie (Brussels). 22.—Proc. Biol. Soc. Washington. 23.—Proc. Entom. Soc. Washington. 24.—Proc. Roy. Ent. Soc., A. 25.—Proc. U. S. Nat. Museum. 26.—Quart. Jour. Microscop. Sci. 27.—Revista d. Soc. Cient. d. Paraguay.

28.—Trans. Illinois Sta. Acad. Sci. 29.—Verhandl. d. Naturfors. Gesells. in Basel.

Review

INSECT DIETARY: AN ACCOUNT OF THE FOOD HABITS OF INSECTS. By Charles T. Brues. Harvard University Press, Cambridge, Mass., 1946. Pp. xxvi + 466. (Illustrated.) $5.00.

It is astonishing how great a portion of entomological science has necessarily been included in this book on food habits. Many phenomena are discussed dealing with the relations of insects to the animate and the inanimate world about them, with growth and development. The approach is very comprehensive and always from the point of view of the entire insect. Details of the chemistry of food use within the insect (metabolism) are not included.

The first chapter deals with the abundance and diversity of insects and cites individual records of actual numbers found in many insect populations. The second deals with food habits in a broad way and as related to growth, structure and surroundings. Then follow three chapters on "vegetarianism," including one on herbivorous insects and the very valuable chapters on gall insects and on fungi and microbes as food and symbioses with microorganisms. The remaining chapters treat of "carnivorism" and include accounts of predator insects, parasitism, blood-sucking and other external parasites, entomophagus insects, and insects as food. The last considers them as food for various forms of plant life from bacteria and fungi to the flowering plants and for animals from protozoa to man himself.

Much of the information given is not available elsewhere in a form that the average entomologist could find and enjoy reading. Yet it is of a sort that will interest all that have a predilection for insects whether they ordinarily pursue morphology, ecology, taxonomy or some other specialty. In the foreword, Dr. Brues states that " biology has failed to simply its problems" and pleads for a broadening of interest on the part of specialists. And indeed, in the writing of this book he has encouraged informative reading by avoiding the temptation to dazzle the reader with a plethora of confusing detail and by keeping the text very readable throughout. At the same time, he has given a selected bibliography at the end of each chapter that will serve as a key to the literature. These references together comprise 191 pages or over 40 percent of the volume. The book is written in an excellent style, clear and straightforward, and is enlivened here and there with humorous sallies.—R. G. SCHMIEDER.

EXCHANGES

This column is intended only for wants and exchanges, not for advertisements of goods for sale or services rendered. Notices not exceeding three lines free to subscribers.

These notices are continued as long as our limited space will allow; the new ones are added at the end of the column, and, only when necessary those at the top (being longest in) are discontinued.

Lepidoptera—Am still collecting here and have only fine specimens for exchange. H. W. Eustis, Woodbine Rd., Augusta, Ga.

Wanted—Viennese Entomological Printing Press, for printing 3, 3½ and 4 type data labels. Kent H. Wilson, 430 Ridgewood Road, Fort Worth 7, Texas.

Wanted—Heteroptera from all parts of the world, all families except Miridae. Will buy, exchange or determine. S. and C. Amer. species esp. desired. John C. Lutz, 6623 Lansdowne Ave., Philadelphia 31, Pa.

Wanted—Mosquitoes for determination, or exchange for S. E. specimens. Particularly desire larvae. H. R. Dodge, Box 1095, Macon, Ga.

Arctic Lepidoptera on hand, including Erebia, Oeneis and Brenthis. R. J. Fitch, Lloydminster, Sask., Canada.

Odonata—Will buy or exchange North and Central American species, both imagos and nymphs. Also will exchange other orders for Odonata. Carl Cook, Crail Hope, Kentucky.

I want to collect Rothschildia farbesi, agapema, galfina and io moths for interested persons. E. Frizzell, Route 4, San Benito, Texas.

Wanted—Information as to the existence and present location of a copy of Solodonikov, S. V. Contribution à l'étude de la faune et de la biologie des larves des Libellules du Donetz et de certains de ces affluents. [In Ukrainian.] Trav. Soc. Nat. Charkow 52: 249–268. 1929. [Quoted from Zool. Rec. 1936, Ins. p. 147, No. 3114.] P. P. Calvert, P. O. Box 14, Cheyney, Penna.

Wanted—Crane-flies (Tripulidae) of New Guinea, New Caledonia and Neighboring Islands, for revisional purposes. Also, names and addresses of individuals or institutions possessing any of these flies. Correspondence solicited. Chas. P. Alexander, Fernald Hall, Amherst, Mass.

I want to collect Pennsylvania insects from York and Adams Co. E. W. Mange, 307 W. Walnut St., Hanover, Pa.

FOR SALE

PAPILIO PONCEANA

Many rare butterflies of South Florida and the Florida Keys

For information write

FLORENCE MOORE GRIMSHAWE

766 N.W. 13 Ave., Miami, Fla.

ENTOMOLOGISTS!

To serve you is *our* business.

Remember we offer

Insect collecting and storing equipment

designed by

Entomologists for Entomologists.

Life Histories accurately and attractively assembled.

Specimens from all over the world for the general collector and the specialist.

Be sure and write us concerning your problems. We are always glad to send our catalogues and lists.

WARD'S NATURAL SCIENCE ESTABLISHMENT, INC.

P. O. Box 24, Beechwood Station Rochester 9, N. Y.

Important Mosquito Works

MOSQUITO ATLAS. Part I. The Nearctic Anopheles, important malarial vectors of the Americas, and Aedes aegypti and Culex quinquefasciata

MOSQUITO ATLAS. Part II. The more important malaria vectors of the Old World: Europe, Asia, Africa and South Pacific region

By Edward S. Ross and H. Radclyffe Roberts

Price, 60 cents each (U. S. Currency) with order, postpaid within the United States; 65 cents, foreign.

KEYS TO THE ANOPHELINE MOSQUITOES OF THE WORLD

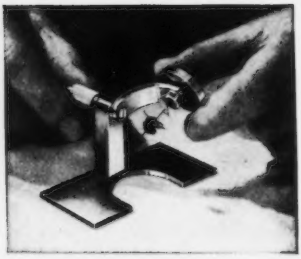
With notes on their Identification, Distribution, Biology and Relation to Malaria. By Paul F. Russell, Lloyd E. Rozeboom and Alan Stone

Mailed on receipt of price, $2.00 U. S. Currency. Foreign Delivery $2.10.

For sale by the American Entomological Society, 1900 Race Street, Philadelphia 3, Pa., U. S. A.

Insects Studied Microscopically
AT EVERY ANGLE
with this
Completely Adjustable Holder

Available Now
for
Immediate Shipment
at
NUSHAWG
Biological Supply, Inc.



Here's a sturdy, PRACTICAL insect holder for ABSOLUTELY CONTROLLED microscopic observation. Simply thrust pinned insect into cork "well" until it is in line with axis of curved arm, then turning knurled knobs you will secure complete dorsal and ventral coverage with the insect in constant focus. Once adjusted, insect's position remains *fixed,* due to split-shaft construction. Available immediately at $15.00 each. Order now . . . enjoy peak efficiency in insect observation!

EMINENT ENTOMOLOGIST SAYS: "I am completely sold on your idea, which in this day of binocular microscopes makes such a device necessary for the proper examination of whole insects in constant focus and at different angles."

—*J. R. de la Torre-Bueno*

- INSECT ALWAYS IN FOCUS
- RECESSED FOR SUBSTAGE LIGHTING
- NOTHING TO WEAR OUT
- STAYS IN ANY POSITION
- RIGID, STURDY, CHROME-PLATED

NUSHAWG BIOLOGICAL SUPPLY, Inc.
East Aurora, New York